

Amendment

Applicant: Robert Nason Thomas

Serial No.: 10/056,946

Filed: January 25, 2002

Docket No.: V255.101.101

Title: COUPLED VORTEX VERTICAL AXIS WIND TURBINE

Amendments to the Claims:

This listing of claims replaces all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A pair of lift-based wind turbines wherein each wind turbine comprises:

a shaft that rotates about a vertical axis, and

a ~~lift-developing blade with an airfoil-shaped cross-section~~ attached to said shaft for rotation

therewith wherein said blade is spaced radially outward from said shaft by a predetermined radius,

wherein the shafts of said pair of lift-based wind turbines are separated from each other by a distance that is less than three times said radius and greater than two times said radius, and

wherein aerodynamic interaction between said wind turbines increases the efficiency thereof.
2. (Original) The wind turbines of claim 1 wherein said shaft of a first one of said wind turbines rotates in a first predetermined direction and said shaft of a second one of said wind turbines rotates in the opposite direction as said one of said wind turbines.

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3. (Original) The wind turbines of claim 1 wherein said shafts of said pair of wind turbines are separated from each other by a distance that is greater than two times said radius but less than two times said radius plus ten feet.
4. (Original) The wind turbines of claim 3 wherein said shafts of said pair of wind turbines are separated from each other by a distance that is greater than two times said radius but less than two times said radius plus 5 feet.
5. (Previously Presented) The wind turbines of claim 3 wherein said shafts of said pair of wind turbines are separated from each other by a distance that is substantially equal to two times said radius plus 3 feet.
6. (Original) The wind turbines of claim 1 wherein said wind turbines have a rotor solidity that is greater than 30% and less than 40%.
7. (Original) The wind turbines of claim 6 wherein said wind turbines have a rotor solidity that is substantially 33%.
8. (Original) The wind turbines of claim 1 wherein said wind turbines further comprise a fail-safe braking system.
9. (Original) The wind turbines of claim 8 wherein said braking system is self-resetting.

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10. (Original) The wind turbine of claim 8 wherein said braking system includes a pneumatic actuator.

11. (Original) The wind turbine of claim 10 wherein a single air compressor provides compressed air for said pneumatic actuator for both wind turbines in said pair of wind turbines.

12. (Original) The wind turbines of claim 1 further comprising a third wind turbine wherein said third wind turbine comprises:

a tower,

a shaft that rotates about a substantially horizontal axis,

a blade attached to said shaft for rotation therewith wherein the swept path of said blade defines

a rotor with upper and lower extreme heights, and

wherein said horizontal axis wind turbine is arranged adjacent said pair of vertical axis wind

turbines such that said lower extreme height of said horizontal axis wind turbine is taller

than the top of said vertical axis wind turbines.

13. (Original) The wind turbines of claim 1 wherein said wind turbines are installed at a location with a prevailing wind direction and wherein a line between the shafts of said pair of wind turbines is substantially perpendicular to said prevailing wind direction.

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14. (New) The wind turbines of claim 1 adapted to provide generally unobstructed flow of wind between the wind turbines.

15. (New) A pair of lift-based wind turbines wherein each wind turbine comprises:
a shaft that rotates about a vertical axis, and
a blade attached to said shaft for rotation therewith wherein said blade is spaced radially outward from said shaft by a predetermined radius,
wherein the shafts of said pair of lift-based wind turbines are separated from each other by a distance that is less than three times said radius, wherein said pair of lift-based wind turbines are adapted to provide generally unobstructed flow of wind between the wind turbines.

16. (New) The wind turbines of claim 15 wherein said shaft of a first one of said wind turbines rotates in a first predetermined direction and said shaft of a second one of said wind turbines rotates in the opposite direction as said first one of said wind turbines.

17. (New) The wind turbines of claim 15 wherein said wind turbines are installed at a location with a prevailing wind direction and wherein a line between the shafts of said pair of wind turbines is substantially perpendicular to said prevailing wind direction.

18. (New) The wind turbines of claim 15 further comprising a third wind turbine wherein said third wind turbine comprises:

a tower,

a shaft that rotates about a substantially horizontal axis,

a blade attached to said shaft for rotation therewith wherein the swept path of said blade defines
a rotor with upper and lower extreme heights, and

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wherein said horizontal axis wind turbine is arranged adjacent said pair of vertical axis wind

turbines such that said lower extreme height of said horizontal axis wind turbine is taller than the top of said vertical axis wind turbines.

19. (New) The wind turbines of claim 15 wherein said wind turbines further comprise a fail-safe braking system.

20. (New) The wind turbines of claim 19 wherein said braking system is self-resetting.